

REMARKS

Claims 1-5 and 7-21 are now pending in the present application.

Claims 1-5 and 7-21 are rejected under 35 USC 103(a) as being unpatentable over U.S. Patent Publication 2002/0033557 to Hashimura and further in view of WO92/20538 to Dollinger, JP 2000-290629 to Ohtsuka and U.S. Patent 5,532,319 to Asahara. The cited references fail to render obvious the present invention.

As is apparent from the description of the present application, important aspects of the present invention reside in the use of the specified terpene resin (A) and the specified aromatically modified terpene resin (B) in a weight ratio of (A):(B) = 70/30 - 50/50 in a total amount of 30 - 200 parts by weight per 100 parts by weight of the thermoplastic elastomer including the epoxy-modified styrene-butadiene based block copolymer, together with the internal mold release agent and 0.1-2 parts by weight of the specified organic peroxide, in the adhesive composition layer (II), for the laminate of the air permeation preventive layer/the adhesive layer.

When the terpene resin (A) having a Mw of 1000 or less and a softening point of 60-120 °C is used, in combination with the aromatically modified terpene resin (B) having a Mw of 1000 or less and a softening point of 60-120 °C in a weight ratio of (A):(B) = 70:30 to 50:50, the desired laminate of an air permeation preventive layer/and adhesive layer having superior bondability with a tire carcass and contributing to the reduction of a tire weight can be obtained.

The above constitution and the effects obtained there from are completely absent in the cited references.

US Patent application publication 2002/0033557 to Hashimura discloses a method of inflation capable of preventing peeling of an inner layer in a molding process accompanied with inflation and deformation. In particular, Hashimura discloses a method of molding a hollow composite by giving deformation towards an inner surface of at least one composite member so

as to cause it to laminate with another composite member, comprising giving the deformation and performing the molding by a pressurizing and heating medium.

However, as mentioned above, important aspects of the present invention reside in the use of the terpene resin (A) and the aromatically modified terpene resin (B), both independently having a Mw of 1000 or less and a softening point of 60-120°C, in the weight ratio (A)/(B) of 70/30-50/50 according to the present invention in the specified amounts, which are neither disclosed nor taught in Hashimura. This is critical in the present invention as mentioned above (please see Example 4 of the present application). This is completely absent in Hashimura et al. This is also not disclosed in Dollinger (WO'538), Ohtsuka (JP'629) and Asahara (US'319).

Hashimura broadly discloses the use of a terpene resin (please see para. [0040]) as a tackifier. However, the use of the specified terpene resin (A) and the specified aromatically modified terpene resin (B) both independently having a Mw of 1000 or less and a softening point of 60-120°C, in a weight ratio (A)/(B) of 70/30-50/50 in combination with the epoxy-modified styrene-butadiene based block copolymer according to the present invention is completely absent in and not even remotely suggested by Hashimura et al.

Dollinger fails to overcome the above discussed deficiencies of Hashimura with respect to rendering obvious the present invention. WO 92/20538 to Dollinger suggests a formulated chlorinated polyethylene film as an inner liner, and pneumatic rubber substrates and rubber tires incorporating such a film as an inner liner. Dollinger, like Hashimura, does not disclose and does not even remotely suggest the use of the specified terpene resin (A) and the specified aromatically modified terpene resin (B), in the specified (A)/(B) weight ratio in combination with the epoxy-modified styrene-butadiene based block copolymer.

JP 200-290629 to Ohtsuka fails to overcome the above discussed deficiencies of Hashimura and Dollinger with respect to rendering obvious the present invention. Ohtsuka discloses a hot-melt adhesive, in which the epoxidized diene-based block copolymer is compounded. Ohtsuka, like the other cited references, does not disclose and does not even remotely suggest the use of the specified terpene resin (A) and the specified aromatically

modified terpene resin (B), in the specified (A)/(B) weight ratio in combination with the epoxy-modified styrene-butadiene based block copolymer.

Asahara fails to overcome the above discussed deficiencies of the above references with respect to rendering obvious the present invention. US Patent 5,532,319 to Asahara discloses a block copolymer composition containing a block copolymer having the formulae: $(S-B-I)_n-X$ and $(S-I-B)_n-X$. Moreover, Asahara broadly teaches the use of terpene resins as tackifiers (please see col. 8, lines 41-53). However, Asahara, like the other cited references, does not disclose and does not even remotely suggest the use of the specified terpene resin (A) and the specified aromatically modified terpene resin (B), in the specified weight ratio (A)/(B) of 70/30-50/50 in combination with the epoxy-modified styrene-butadiene based block copolymer according to the present invention.

In order to further demonstrate the criticality of the combined use of the terpene resin (A) having a Mw of 1000 or less and a softening point of 60-120 °C, together with the aromatically modified terpene resin (B) having a Mw of 1000 or less and a softening point of 60 - 120°C, in a weight ratio of (A):(B) = 70:30 - 50/50, a Rule 132 Declaration executed by Mr. Daisuke Kanenari, the inventor of the present invention was previously filed.

This Declaration was presented, even though, as discussed above, a prima facie case of obviousness has not even been made by the Patent Office. Accordingly, such is not even needed in this application. Please see *Takeda v. Alphapharm*, 492 F. 3rd. 1350 (Fed. Cir. 2007).

As is clear from the previously filed Rule 132 Declaration of Mr. Kanenari, when the terpene resin (A) having a Mw of 1000 or less and a softening point of 60 - 120°C is used, in combination with the aromatically modified terpene resin (B) having a Mw of 1000 or less and a softening point of 60 - 120°C in a weight ratio of (A)/(B) = 70:30 to 50:50, the desired laminate of an air permeation preventive layer/an adhesive layer having superior bondability with a tire carcass and contributing to the reduction of a tire weight can be obtained. For instance, please see Experiment III.

Contrary to the above, as shown in Comparative Experiments I and II, when the aromatically modified terpene resin was not compounded, both the self tack and the tack with the carcass thereof are inferior to those obtained in Experiment III, according to the present invention.

However, the following comments have been made in the Office Action:

(i) Comparative Example I cannot be fairly compared to Inventive Experiment III since the loadings of the components forming the thermoplastic elastomer are varied and the types of terpene resin are varied.

(ii) Comparison of Comparison Experiment 2 and Inventive Experiment III does not provide a conclusive showing of unexpected results for a composition having two terpene resins "at the claimed loading ratio". In particular, the Comparative Experiment does not contain two terpene resins at a loading ratio outside of the claimed loading ratio (e.g. greater than 70/30 or less than 50/50).

(iii) Comparative Experiment demonstrates a better self tack, as compared to the Inventive Experiment III.

(iv) It is unclear if the realized benefit in "tack with carcass" is a result of using two resins since it unclear if a composition having 70 phr of modified terpene resin B would demonstrate superior or inferior tack properties.

In view of the above comments, an additional Rule 132 Declaration is being filed with this response. The Declaration filed with this response, includes Comparative Experiments IV and V, in which the weight ratio of (A):(B) are 30:40 (i.e., 42.9:57.1) and 55:15 (i.e., 78.57:21.43), respectively, both of which are the outside of the range of the present invention (i.e., 70:30 - 50:50). The self tack and the tack with the carcass are inferior to those obtained in Experiment III, as shown in the Table A of the additional Rule 132 Declaration. Please note that Experiments I - III are the same as shown in the previously filed Rule 132 Declaration.

The comment in the Office Action that Comparative Experiment demonstrates a better self tack, as compared to the Inventive Experiment III is not correct since the self

tack of the present Experiment III (i.e., 4.8 N) is higher than those of Comparative Experiments I and II (i.e., 3.0 N and 3.4 N). However, it is important to recognize that the critical property is the tack with the carcass. As shown in the declaration, the tack with the carcass for the composition of the present invention is significantly greater. If self tack is higher, such is not as an important concern so long as it does not result in the composition being difficult to handle. In the present case, the self tack of the composition III of the present invention is not a problem in handling.

In addition, a comparison of Examples II and III, clearly demonstrates the improved results achievable by the present invention. Example II has the same components and amounts as Example III, except that Example II does not include the aromatically modified terpene resin, but includes the same total quantity of terpene resin.

In conjunction with interpreting 35 U.S.C. §103 under *Graham v. John Deere*, 383 U.S. 1, 148 U.S.P.Q. 459 (1966) and *KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007), the initial burden is on the Patent Office to provide some apparent reason or suggestion of the desirability of doing what the inventor did, i.e. the Patent Office must establish a *prima facie* case of obviousness. To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention, or the Patent Office must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. In addition, the prior art reference (or references when combined) must teach or suggest all of the claim limitations.

As discussed above, the cited references, even if combined, fail to disclose all of the claim recitations. In particular, the cited art fails to disclose and does not even remotely suggest the use of the specified terpene resin (A) and the specified aromatically modified terpene resin (B), in the specified weight ratio (A)/(B) of 70/30-50/50 in combination with the epoxy-modified styrene-butadiene based block copolymer as recited according to the present invention. Moreover, it would not be obvious to select the two different terpene resins and to employ them in the recited weight ratio of 70/30-50/50, since, as set forth in MPEP §2144.05 II. (B), only result-effective variables can be optimized. Specifically, a particular parameter must first be recognized

as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation or an obvious choice of expedients or design choice. Also, please see *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

The mere fact that cited art may be modified in the manner suggested in the Office Action does not make the modification obvious, unless the cited art suggests the desirability of the modification or impliedly suggests the claimed invention, or the Patent Office has presented a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. No such suggestion appears in the cited art in this matter nor has a convincing line of reasoning convincing line of reasoning been presented in this case. The Examiner's attention is kindly directed to *KSR Int'l Co. v. Teleflex, Inc.*, *supra*; *In re Dembiczak et al.* 50 USPQ2d. 1614 (Fed. Cir. 1999), *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984), *In re Laskowski*, 10 USPQ2d. 1397 (Fed. Cir. 1989) and *In re Fritch*, 23, USPQ2d. 1780 (Fed. Cir. 1992).

Furthermore, the cited art lacks the necessary direction or incentive to those of ordinary skill in the art to render a rejection under 35 USC 103 sustainable. The cited art fails to provide the degree of predictability of success of achieving the properties attained by the present invention needed to sustain a rejection under 35 U.S.C. 103. See *KSR Int'l Co. v. Teleflex, supra*, *Diversitech Corp. v. Century Steps, Inc.*, 7 USPQ2d 1315 (Fed. Cir. 1988), *In re Mercier*, 187 USPQ 774 (CCPA 1975) and *In re Naylor*, 152 USPQ 106 (CCPA 1966).

Moreover, the properties of the subject matter and improvements which are inherent in the claimed subject matter and disclosed in the specification are to be considered when evaluating the question of obviousness under 35 USC 103. See *KSR Int'l Co. v. Teleflex, supra*, *Gillette Co. v. S.C. Johnson & Son, Inc.*, 16 USPQ2d 1923 (Fed. Cir. 1990), *In re Antonie*, 195 USPQ 6 (CCPA 1977), *In re Estes*, 164 USPQ 519 (CCPA 1970), and *In re Papesch*, 137 USPQ 43 (CCPA 1963).

No property can be ignored in determining patentability and comparing the claimed invention to the prior art. Along these lines, see *In re Papesch*, *supra*, *In re Burt et al*, 148 USPQ 548 (CCPA 1966), *In re Ward*, 141 USPQ 227 (CCPA 1964), and *In re Cescon*, 177 USPQ 264 (CCPA 1973).

In view of the above amendment, applicant believes the pending application is in condition for allowance.

In the event that the examiner believes that an interview would advance the prosecution of this application in any way the undersigned is available at the phone number noted below.

If any additional fee is due, please charge our Deposit Account No. 22-0185, under Order No. 21713-00026-US1 from which the undersigned is authorized to draw.

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BAA

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